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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,992	02/18/2004	Katsutoshi Suzuki	9281-4768	3310

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P.O. Box 10395
Chicago, IL 60610

EXAMINER

LUKS, JEREMY AUSTIN

ART UNIT	PAPER NUMBER
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2837

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/780,992	Applicant(s) SUZUKI, KATSUTOSHI	
	Examiner Jeremy Luks	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (WO 01/41496) in view of Azima (6,522,760) and Shimakawa (5,894,263). Sakai teaches a plane diaphragm (Figure 1B, #9) and a vibration-generating driving source (2, 3) for vibrating the diaphragm (9); at least one end and two sides (ends of diaphragm #9) perpendicular to the one end and opposite to each other are supported on an elastic cushion member (6b), the cushion member (6b) is supported on a base (12), with one side of the base (12) supporting the diaphragm (9) and the other side of the base (12) arranged at a side opposite to the diaphragm (9), and wherein the diaphragm (9) vibrates in a plane direction perpendicular to the plane of the diaphragm (9) when the vibration-generating driving source (2, 3) is driven; wherein the vibration-generating source includes a magnet (Figure 3B, #2) arranged with a predetermined gap between the magnet (2) and the back side of the diaphragm (9), and a coil (10) wound with a predetermined gap between the coil (10) and the outer peripheral surface of the magnet (2), the coil being fixed to the back side of the diaphragm (9), the magnet (2) being mounted on a first plate-shaped yoke (1), and wherein the first yoke (1) is

supported on a connecting member (5) fixed to the back side of the diaphragm (9) and a gap is formed between the first yoke (1) and the base (12). Sakai fails to teach wherein the vibration-generating driving source is supported on the back side of the diaphragm near one end of the diaphragm; a vibration controlling portion for controlling a particular vibration mode having a large amplitude generated in the diaphragm is formed in the cushion member or the base; wherein the vibration controlling portion is formed by partly varying the width dimension of the cushion member by partly projecting or concaving the portion of the cushion member, and the elastic force of the cushion member supporting the diaphragm is partly varied by the vibration controlling portion. Shimakawa teaches a vibration controlling portion (Figure 7, #21) for controlling a particular vibration mode having a large amplitude generated in the diaphragm is formed in the cushion member (Col. 8, Lines 55-63), wherein the vibration-controlling portion (21) is formed by partly varying the width dimension of the cushion member (Figure 12, #21e-f) by partly projecting a portion (21e) of the cushion member (21e-f), and an elastic force of the cushion member (21e-f) is partly varied by the vibration-controlling portion. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Sakai, with the apparatus of Shimakawa to provide a flat spectrum of frequency vibrations. Shimakawa fails to teach wherein the vibration-generating driving source is supported on the backside of the diaphragm near one end of the diaphragm. Azima teaches wherein a vibration-generating driving source (Figure 3, #34) is supported on the backside of a diaphragm (11) near one end of the diaphragm (11). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Sakai as modified,

with the apparatus of Azima to provide acoustically acceptable effective distribution and excitement of resonant mode vibration, resulting in improved sound quality.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (WO 01/41496) in view of Azima (6,522,760) and Shimakawa (5,894,263), as applied to Claim 1, and further in view of Sahyoun (6,460,651). Sakai, Azima and Shimakawa are relied upon for the reasons and disclosures set forth above. Sakai, Azima and Shimakawa fail to teach holes formed in a portion of the cushion member, and the elastic force of the cushion member supporting the diaphragm is partly varied by the holes. Sahyoun teaches holes (Figure 33, #276) formed in a portion of a cushion member, and the elastic force of the cushion member supporting the diaphragm is partly varied by the holes (276) when used in combination with Sakai. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Sakai as modified, with the apparatus of Sayhoun in order to provide a flat spectrum of frequency vibrations.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (WO 01/41496) in view of Azima (6,522,760) and Shimakawa (5,894,263), as applied to Claim 1, and further in view of Bertagni (5,693,917). Sakai, Azima and Shimakawa are relied upon for the reasons and disclosures set forth above. Sakai further teaches a vibration-controlling portion comprises a cushion member (Figure 3B, #6b) supporting two opposite sides of the diaphragm (9). Sakai, Azima and Shimakawa fail to teach wherein a stepped portion formed in the portion of the base supporting the other side of the cushion member, and the elastic force of the cushion member supporting the diaphragm is partly varied by the stepped portion. Bertagni teaches a stepped portion

(Figure 5, #78) formed in a portion of a base (74) supporting the other side of a cushion member when used in combination with Sakai, and the elastic force of the cushion member supporting the diaphragm is partly varied by the stepped portion (78), when used in combination with Sakai. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Sakai as modified, with the apparatus of Bertagni to better secure the apparatus together.

Response to Arguments

5. Applicant's arguments filed 3/12/07 have been fully considered but they are not persuasive. The Examiner considers the obvious combination of Sakai, Azima and Shimakawa, Sayhoun and Bertagni to teach all of the limitations as claimed by Applicant.

6. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). With respect to claim 1, the transducer #34 of Azima is in fact a vibration generating source, as it is well known that transducers convert electrical energy into mechanical energy in the form of vibrations. The Examiner used the Sakai reference to teach the elements of the vibration generating driving source, or transducer, including a permanent magnet, plate and yoke, which one of ordinary skill in the art would recognize that this construction for transducers is well known in the art. Further, the limitations defining the location of the elements inside the vibration-generating driving

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source are not claimed in claim 1, but rather in claim 6, rendering Applicant's argument moot with respect to the transducer elements with respect to claim 1. Further, it has been held that rearranging parts of an invention involves only routine skill in the art. In *re Japikse*, 86 USPQ 70.

7. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, with respect to the Azima reference, Azima teaches that locating the transducer near an end of the diaphragm will improve sound quality by providing acoustically acceptable effective distribution and excitement of the resonant mode vibration. Applicant quotes Sakai, the primary reference (Page 7, lines 23-26), which state that the mass of the yoke may be increased if desired to create greater vibrations. Applicant then submits that if combined the yoke would be decreased, despite the lack of teaching for this opinion. The examiner also notes that Azima offers the increased yoke size as an option to increase vibrations when louder sound is needed and not that the size must be increased. One of ordinary skill would also recognize that it is possible to decrease the yoke for use in a compact environment or where less volume is needed. Azima teaches that it is possible for the vibration-generating portion to be located on a portion of the diaphragm other than the center, and therefor the combination is proper.

8. In response to applicant's argument that the cushioning element of the prior art is not intended to control a particular vibration mode having a large amplitude generated in the diaphragm, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

9. With respect to the dependent claims, Sahyoun the use of holes for varying a force, and when combined with Sakai, Azima and Shimakawa the holes would be located in the cushion member which functions like a frame element between the diaphragm and base (see claim 1). With respect to the Bertagni reference, the Examiner considers the so-called T-shaped member #78 in Figure 5 to be stepped and therefor teaches this limitation.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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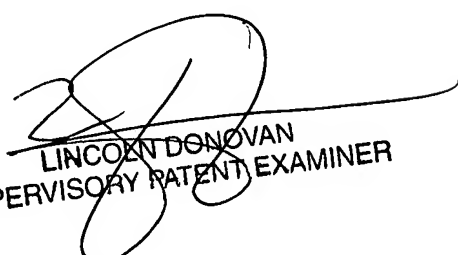
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Luks whose telephone number is (571) 272-2707. The examiner can normally be reached on Monday-Thursday 8:30-6:00, and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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